

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1. (currently amended) [e01] A method for calculating the number of valid instructions within a microprocessor, comprising:

advancing instructions along a microprocessor pipeline; and
edge detecting valid instructions within the microprocessor pipeline.

2. (currently amended) [e02] A method for calculating the number of valid instructions within a microprocessor, comprising:

fetching a bundle of instructions; and
edge detecting valid instructions within the bundle.

3. (currently amended) [e03] A method according to claim 2, further comprising shifting at least one instruction within the bundle

4. (currently amended) [e04] A method according to claim 3, further comprising shifting rotating at least one instruction based at least in part on the number of valid instructions in the bundle.

5. (currently amended) [e05] A method according to claim 3, further comprising compressing the bundle of instructions.

6. (currently amended) [e06] A method according to claim 3, further comprising compressing the bundle of instructions for a monotonic instruction bundle set.

7. (currently amended) [e07] A method according to claim 3, further comprising compressing the bundle of instructions based at least in part on the number of valid instructions in the bundle.

8. (currently amended) [e08] A method, comprising:
fetching a bundle of instructions having a complex instruction; shifting at least one instruction occurring after the complex instruction; and edge detecting the number of valid instructions occurring after the complex instruction.

9 (currently amended) [e09] A method according to claim 8, further comprising bundling instructions occurring prior to the complex instruction.

10.(currently amended) [e10] A method according to claim 8, further comprising executing instructions occurring before the complex instruction.

11. (currently amended) [e11] A method according to claim 8, further comprising bundling instructions occurring after the complex instruction.

12. (currently amended) [e12] A method according to claim 8, wherein the step of shifting the instructions comprises compressing the instructions occurring after the complex instruction.

13. (currently amended) [e13] A method according to claim 8, wherein the step of shifting the instructions comprises compressing the instructions occurring after the complex instruction for a monotonic instruction bundle set.

14. (currently amended) [e14] A method according to claim 8, further comprising executing instructions occurring prior to the complex instruction during a first clock cycle.

15. (currently amended) ~~[e15]~~ A method according to claim 14, further comprising executing the complex instruction during a second clock cycle.

16. (currently amended) ~~[e16]~~ A method according to claim 15, wherein the step of shifting the instructions within an instruction bundle occurs while at least one of *i*) the instructions occurring prior to the complex instruction are executed and *ii*) the complex instruction is executed.

17. (currently amended) ~~[e17]~~ A method, comprising:

fetching ~~a~~ bundle of instructions having a complex instruction;
executing during a first clock cycle valid instructions occurring prior to the complex instruction;
executing the complex instruction during a second clock cycle;
shifting instructions within the bundle occurring after the complex instruction during at least one of the first clock cycle and the second clock cycle;
edge detecting valid instructions occurring after the complex instruction during at least one of the first clock cycle and the second clock cycle; and
executing the valid instructions occurring after the complex instruction during a third clock cycle.

18. (New) An apparatus for calculating the number of valid instructions within a microprocessor, comprising:

a mechanism for fetching a bundle of instructions,
a advancing mechanism for advancing instructions along a microprocessor pipeline, and
an edge detection element for detecting valid instructions within the bundle.

19. (New) An apparatus according to claim 18, further comprising a shifting mechanism for shifting at least one instruction based at least in part on the number of valid instructions in the bundle.

20. (New) An apparatus according to claim 18, further comprising a compression mechanism, wherein said compression mechanism compressed a bundle of instructions for a monotonic instruction bundle.

21. (New) The apparatus according to claim 18, further comprising a compression mechanism, wherein said compression mechanism compressed a bundle of instructions based at least in part on the number of valid instructions in the bundle.

22. (New) The apparatus according to claim 18, further comprising a bundling mechanism, wherein said bundling mechanism bundles instructions occurring prior to a complex instruction.

23. (New) An apparatus in accordance with claim 18, further comprising an execution mechanism, wherein said execution mechanism executes instructions occurring prior to a complex instruction during a first clock cycle.

24. (New) an apparatus in accordance with claim 18, further comprising an execution mechanism, wherein said execution mechanism executes a complex instruction during a second clock cycle.